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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,364	03/30/2006	Antonius Leonardus Johannes Dekker	NL 031184	2293

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EXAMINER	
BIBBINS, LATANYA	

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,364	DEKKER, ANTONIUS LEONARDUS JOHANNES	
	Examiner	Art Unit	
	LaTanya Bibbins	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Preliminary Amendment

1. Receipt is acknowledged of the preliminary amendment filed on March 30, 2006. In the amendment, claims 3, 4, 8-10, and 14 were amended. Currently claims 1-15 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the rectangular boxes shown in Figures 1-3 should be provided with descriptive text labels.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: the specification is inconsistent with the preferred/suggested guidelines for the layout of the specification. Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. ***Claims 1, 3, 4, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Osborne (US Patent Number 5,107,107).***

Regarding claim 1, Osborne discloses an optical disc drive (Figures 7 and 8) comprising: a lens for focusing and positioning a radiation beam on an optical disc (see the objective lens, Figure 8 element 92), wherein the radiation beam is reflected by the optical disc (column 8 line 67 – column 9 line 2); means for causing the optical disc to rotate with a disc rotational frequency (see the spindle drive mechanism, Figure 7 element 76, and the discussion in column 11 lines 1-5), and detection means for receiving the reflected radiation beam and generating a radial error signal indicating a position of the lens relative to the optical disc (see the discussion in column 9 lines 26-

39), lens position motor for moving the lens (see the voice coil motors ,Figure 8 elements 96 and 98, and the discussion in column 9 lines 7-10 and column 10 lines 47-50), a servo control circuit having a tracking mode for controlling the position of the lens in response to the radial error signal (see the discussion in column 9 line 26 – column 10 line 16 particularly regarding the three beam method), comprising a first motor control circuit for controlling the lens position motor (see the discussion in column 9 line 3-11 regarding the servo controlled actuators), characterized in that the control circuit further comprises means for applying an alternating signal to the lens position motor (see the discussion in column 10 lines 17-44 specifically regarding the dithering method).

Regarding claim 3, Osborne discloses an optical disc drive according to claim 1, for an optical disc having a given track pitch, wherein the alternating signal is of an amplitude sufficient to cause the lens to shake with an amplitude of at least about 0.8 to 1.0 times the track pitch (see Figure 13 and the discussion in column 10 lines 17-44 specifically the “full pit width off-track”).

Regarding claim 4, Osborne further discloses a sledge for moving the lens position motor and the lens in radial direction relative to the optical disc (see the discussion in column 10 lines 55-62 regarding the carriage mechanism and Figure 7 elements 78 and 80), and a second motor for control of the sledge, wherein the servo control circuit comprises a second motor control circuit for controlling the second motor (see the discussion in column 10 lines 55-62 regarding the carriage mechanism and Figure 7 elements 78 and 80).

Regarding claim 15, Osborne discloses method for controlling the position of a lens in an optical disc drive, the method comprising the steps of: causing an optical disc to rotate with a disc rotational frequency (see the spindle drive mechanism, Figure 7 element 76, and the discussion in column 11 lines 1-5); controlling the position of the lens with a lens position motor (see the voice coil motors ,Figure 8 elements 96 and 98, and the discussion in column 9 lines 7-10 and column 10 lines 47-50); characterized in that the method further comprises a step of applying an alternating signal to the lens position motor (see the discussion in column 10 lines 17-44 specifically regarding the dithering method).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (US Patent Number 5,107,107) in view Ohta et al. (US Patent Number 6,067,285) and further in view of Baba (US Patent Number 5,768,227).

Regarding claim 2, Osborne discloses an optical disc drive according to claim 1 as noted in the 35 U.S.C. 102(b) rejection above. Osborne, however, fails to specifically disclose the frequency of the alternating signal and the disc rotational frequency. Ohta,

however discloses a disc rotational frequency ranging from 200 to 500 rpm (column 1 lines 41-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disc rotational frequency disclosed by Ohta into the optical disc drive of Osborne. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings such that the tracking servo performs sufficiently as suggested by Ohta (column 1 lines 41-44).

The combination of Osborne and Ohta do not specifically disclose the frequency of the alternating signal. Baba, however, discloses wherein the alternating signal has a frequency higher than the disc rotational frequency (column 14 lines 26 and 27 where the objective lens is oscillated at 250 Hz).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate the frequency of the alternating signal as disclosed by Baba into the optical disc drive of Osborne and Ohta One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings "in order to obtain a maximum track crossing frequency of 10kHz" (column 14 lines 24-26).

9. Claims 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (US Patent Number 5,107,107) in view of Fennema (US Patent Number 5,220,546).

Regarding claim 5, Osborne discloses an optical disc drive according to claim 4 as noted in the 35 U.S.C. 102(b) rejection above. While Osborne fails to specifically disclose, Fennema clearly discloses wherein the detection means are adopted to generate a lens position signal which is indicative of the position of the lens with respect to the sledge (see the discussion or the RPE signal in column 6 lines 16-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fennema into the teachings of Osborne. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to provide a precise servo positioning operation within the disk drive (as suggested by Fennema in column 7 lines 1-5).

Regarding claim 6, Fennema further discloses wherein the servo control unit has a non-tracking mode and wherein the servo control unit further comprises a lens position controller for outputting a lens position control signal to control the position of the lens in response to the lens position signal in the non-tracking mode (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 7, Fennema further discloses wherein the lens position signal is fed to a low-pass filter with a cut-off frequency less than the frequency of the alternating signal and an output of the low-pass filter is fed to the lens position controller (Figure 8 element 161 and the discussion in column 8 lines 21-51 where both the TES and the RPE signal are fed into the low pass filter).

Regarding claim 8, Osborne further discloses wherein the servo control circuit further comprises means for combining the lens position control signal with the alternating signal to give a modulated signal to the lens position motor (see the discussion in column 10 lines 17-44).

Regarding claim 9, Osborne discloses an optical disc drive according to claim 1 as noted in the 35 U.S.C. 102(b) rejection above. While Osborne fails to specifically disclose, Fennema clearly discloses wherein the servo control circuit comprises a radial offset control feedback loop (see Figure 6 and the discussion in column 7 lines 6-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fennema into the teachings of Osborne. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to provide a precise servo positioning operation within the disk drive (as suggested by Fennema in column 7 lines 1-5).

Regarding claim 10, Fennema further discloses wherein the radial offset control feedback loop is able to operate in a first mode and in a second mode, wherein in the first mode the lens is moved in a neutral position and a lens position offset in the lens position signal is measured and in the second mode the lens position signal is corrected with the measured lens position offset (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 11, Fennema further discloses a micro-controller receiving an input from a user and providing an initialization signal in response to the user input (see the microprocessor in Figure 2 element 40 and the discussion in column 2 line 41 –

column 3 line 13), wherein: first switching means responsive to the initialization signal are provided for selectively causing the lens position motor to allow the lens position to adopt a neutral position or cause the lens position motor to be controlled by the first motor control circuit (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20), and the radial offset control feedback loop comprises second switching means responsive to the initialization signal for selectively measuring a lens position offset of the lens position signal or correcting the lens position signal with the measured lens position offset (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 12, Fennema further discloses wherein the radial offset control feedback loop is able to operate in a first mode and in a second mode, wherein in the first mode the lens is moved in a neutral position and wherein a radial offset in the radial error signal is measured and wherein in the second mode the measured radial offset is subtracted from the radial error signal (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 13, Fennema further discloses a micro-controller receiving an input from a user and providing an initialization signal in response to the user input (see the microprocessor in Figure 2 element 40 and the discussion in column 2 line 41 – column 3 line 13), wherein: first switching means responsive to the initialization signal are provided for selectively causing the lens position motor to allow the lens position to adopt a neutral position or cause the lens position motor to be controlled by the first motor control circuit (see Figures 6 and 7 and the discussion in column 7 line 1- column

8 line 20), and the radial offset control feedback loop comprises third switching means responsive to the initialization signal for selectively measuring a radial offset of the radial error signal or correcting the radial error signal with the measured radial offset (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (US Patent Number 5,107,107) in view of Fennema (US Patent Number 5,220,546), as applied to claim 9 above, further in view of Ohta et al. (US Patent Number 6,067,285) and further in view of Bierhoff (US Patent Number 4,471,477).

Regarding claim 14, the combination of Osborne and Fennema fail to specifically disclose, wherein the radial offset control feedback loop has a time constant that is low with respect to the disc rotational frequency. Ohta, however discloses a disc rotational frequency ranging from 200 to 500 rpm (column 1 lines 41-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disc rotational frequency disclosed by Ohta into the optical disc drive of Osborne and Fennema. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings such that the tracking servo performs sufficiently as suggested by Ohta (column 1 lines 41-44).

Osborne in combination with Fennema and Ohta fail to disclose, while Bierhoff discloses, wherein the radial offset control feedback loop has a time constant that is low with respect to the disc rotational frequency (column 4 line 33-column 5 line 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Osborne, Fennema and Ohta with that of Bierhoff. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to stabilize the loop gain and thus the bandwidth of the radial tracking control loop (Bierhoff column 2 lines 49-54).

Citation of Relevant Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakane et al. (US Patent Number 7,164,630 B2) disclose a tracking error signal generating circuit wherein the same signal of a constant frequency from an oscillator is added to the comparison inputs to a phase difference sensing section via adders. In this way, adding the same signal of a constant frequency enables the DPD signal to be muted automatically, when the RF signal to be supplied to the phase difference sensing section disappears due to a flaw or the like in the disk surface. Since the DPD signal is muted when a portion where there is a flaw in the disk surface is scanned, a servo loop that prevents an erroneous operation, such as track skipping, from occurring can be constructed. In the modification, the defect sensing section 106 is not required.

Yamada et al. (US Patent Number 5,699,334) disclose a tracking control device for controlling a position of a beam spot formed by converging a light beam on a disk having tracks formed thereon including an actuator for moving the beam spot in a

direction substantially perpendicular to the tracks; a tracking error detecting circuit for detecting a deviation of the beam spot from one of the tracks using the light beam returning from the disk and for outputting a tracking error signal indicative of the detected deviation; and a control circuit section for outputting a driving signal to drive the actuator in accordance with the tracking error signal so as to control the beam spot to be positioned on the one of the tracks. When the driving signal is saturated, the control circuit section obtains a saturation signal in accordance with an amount of the saturation, delays the saturation signal, and supplies the saturation signal to the actuator together with the driving signal.

Yoshio et al. (US Patent Number 5,341,353) disclose a track search controller having three two-segment photodetectors, three subtracters associated respectively with the two-segment photodetectors, a processing circuit, and a servo control circuit. Each of the photodetectors produces two output signals based on a light beam reflected from an optical disk. Each of the subtracters produces a differential output signal representing the difference between the output signals from the associated photodetector. The processing circuit generates an actuator position signal from the output signals from the subtracters. The actuator position signal contains a component indicative of a deviation of the actuator due to its vibration. The servo control circuit controls an actuator, which actuates a laser beam source, so that the actuator position signal will be of a constant value.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaTanya Bibbins whose telephone number is (571)270-1125. The examiner can normally be reached on Monday through Friday 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LaTanya Bibbins/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627